

False Alarms, Real Challenges—One University's Communication Response to the 2001 Anthrax Crisis

CHRISTOPHER E. CLARKE and CARON CHESS

Considerable research exists on how government agencies at the federal, state, and local levels communicated during the fall 2001 anthrax attacks. However, there is little research on how other institutions handled this crisis, in terms of their response to potential anthrax contamination (*aka* “white powder scares”) and their approach to disseminating important health and safety information. In this article, we investigate a major university's communication response to the anthrax crisis. First, we describe its communication experiences relating to a large white powder scare that occurred in October 2001. Second, we describe the university's broader communication efforts in terms of several important elements of risk communication research, including influence of source attributes, key messages, preferred channels, responses to information requests, and organizational influences. This study underlines that an institution does not have to be directly affected by a crisis to find itself on the communication “front lines.” Moreover, other institutions may find it useful to learn from the experiences of this university, so that they may communicate more effectively during future crises.

DURING THE ANTHRAX CRISIS of October–November 2001, federal, state, and local government agencies handled numerous communication challenges, including a paucity of scientific information on bioterrorism-related anthrax, constant media inquiries, great public demand for information, and limited time in which to provide information.^{1–7} However, these challenges were not confined solely to locations with confirmed anthrax cases or exposures. Many other institutions, including colleges and universities, responded to reports of potential anthrax contamination involving suspicious substances or pieces of mail—so-called “white powder scares.”^{8–12} As a result, these institutions likewise found themselves on the communication “front lines,” needing to provide vital health and safety information to their faculty, students, and staff.

There is increasing research on how government agencies communicated during the anthrax attacks,^{13,14} but the

literature says little about experiences of academic institutions.⁷ However, given the threat that both natural and manmade disasters present to these institutions—for example, Tulane University's experiences with Hurricane Katrina in New Orleans, and the debate about the roles of colleges and universities in responding to an outbreak of pandemic influenza—our findings speak directly to how they can better communicate during times of crisis.^{15,16} Moreover, the fact that many universities are complex hierarchical and bureaucratic organizations means that communication lessons learned there can be applied to other, similarly structured entities in the government and corporate realms.

In this article, we describe the communication response of a major university (which we will call University A) to a white powder scare at a campus building (called Building 1). We have kept the name of the institution anonymous to maintain interviewee confidentiality.

Christopher E. Clarke is an MS student in the Department of Communication, Cornell University, Ithaca, New York. Caron Chess, PhD, is Associate Professor, Department of Human Ecology, Rutgers University, New Brunswick, New Jersey.

We also discuss how this incident spurred University A to communicate with its community about the larger issue of bioterrorism and the actions it was taking in response to the anthrax crisis. As colleges and universities prepare for future emergencies (whether natural or man-made),¹⁷ we hope they might find useful the risk communication lessons from University A's experience.

RESEARCH QUESTIONS

We developed the following research questions:

1. How did University A communicate during the incident at Building 1? How did the participants involved perceive communication?
2. How did University A communicate *beyond and outside* the Building 1 incident, to address the larger issue of bioterrorism and the ongoing anthrax crisis? What specific actions were taken? How did people involved in this effort perceive communication?

OVERVIEW OF THE INCIDENT AT BUILDING 1

The incident that occurred at Building 1 on October 15, 2001, was one of approximately 48 incidents that the university experienced during the fall of 2001, according to our interviewee data. As shown in Figure 1, this incident occurred on the same day that anthrax was discovered in the offices of former Senator Tom Daschle (D-SD) in Washington, DC.

At about 11:30 AM, a package was received and opened in an administrative office in Building 1, after which a secretary noticed a white substance on her desk and clothes. The University Police Department (UPD) and the Environmental, Health, and Safety Department (EHS) were notified and responded; they evacuated and temporarily detained all personnel who had been present in the building, except the 10 people who had been in the aforementioned administrative office. Approximately 100 individuals were detained in front of the building for 3 hours, and each was asked to provide contact information in the form of a university identification card.

During this time, access to food, water, and restroom facilities was limited. The 10 individuals who had been kept inside were taken to the building's basement, instructed to shower, and subsequently transported to a local hospital for evaluation. Later in the evening, they were transported back to campus and excused.

The building was shut for 24 hours and reopened on October 17. The substance was taken to the state Department of Health laboratory, although it was unclear

whether it was actually subsequently tested for anthrax. University officials later determined that the substance had likely been glue from the envelope seal.

METHODS

To explore both the incident at Building 1 and University A's larger response, we conducted 31 in-depth interviews with members of the university community, reviewed print media coverage of University A's activities, and examined internal university communiqués, including press releases and electronic communications.

We identified university departments that participated in the on-scene response to the Building 1 incident, including police, EHS personnel, and Mail Services personnel, whom we collectively term "information providers." Outreach letters were sent to the directors of each department explaining the purpose of the project and requesting an interview. Other suggestions for participants were solicited from those we interviewed, using a snowball approach: one person from a department would initially be contacted, but numerous interviews within that department might take place.

We also interviewed faculty and staff who had received information during the Building 1 incident (whom we call "information recipients"). We used two approaches to identify these recipients. First, we contacted an administrator or faculty member from each department in Building 1 and asked them who was in the building during the time of the incident. Second, we used a similar snowball approach, asking interviewees for the names of other individuals who were involved. Although students participated in the incident, our interviews were limited to staff and faculty, because tracking students who were in the facility at the time was extremely difficult: class rosters were unavailable, and many of the students had graduated and left the university at the time of this research.

Our interview protocol focused on basic risk communication issues related to our research questions. The 15 information recipients were asked about the information they recalled receiving, the ways they received information, and how they responded to it. We asked 16 information providers the corollary of these questions: who they informed, how, and their perspectives on communication. Some months later, a set of follow-up questions focusing on other university risk communication activities were asked of these same information providers.

Data collection took place several years after the Building 1 incident and may be subject to recall bias, which can be a limitation of qualitative studies about the anthrax attacks.¹⁸ However, participants had surprisingly vivid memories of these dramatic events. Also, we sent

FIGURE 1. TIMELINE OF EVENTS AT UNIVERSITY A IN RELATION TO THE ANTHRAX ATTACKS

Date (2001)	Event Description
October 5	First confirmed anthrax death (Florida)
October 12	<i>University A Media Relations sends the media a list of professors in the College of Pharmacy who are available for commentary on bioterrorism issues.</i>
October 14	First report that Hamilton (NJ) post office had handled anthrax letters.
October 15	<p>Anthrax letter opened in the office of Senator Tom Daschle.</p> <p><i>Building 1 “white powder” incident occurs. Coverage in university and local media (Day 1).</i></p> <p><i>Media Relations releases information about the incident.</i></p> <p><i>Memo titled “Mail Handling and Public Safety in Light of Recent Events” sent to all students.</i></p> <p><i>Memo titled “Safeguards and Procedures for Suspicious Mail” sent to all staff members of University Mail Services by the Assistant Director.</i></p>
October 16	<p><i>University-wide e-mail titled “Safeguards and Procedures for Identifying and Handling Suspicious Mail: Memo to the University Community” is sent to all faculty, students, and staff. The information is also re-sent as a Crime Alert by the police department on the same day.</i></p> <p><i>Day 2 coverage of white powder event in university and local media. Media Relations releases information that the building will reopen the next day (October 17) and that tests on the substance were negative for anthrax.</i></p>
October 17	<i>Building 1 reopens.</i>
October 18	Hamilton post office closed; antibiotic treatment for postal workers begins.
October 22	Second and third confirmed anthrax deaths (Washington, DC)
October 23	<p>First suspected inhalation anthrax case in Hamilton (confirmed October 28)</p> <p><i>Occupational Health Services organizes anthrax education sessions for university postal workers.</i></p> <p><i>Media Relations re-releases information about Building 1 incident (from October 16) to the media. Information content is unchanged.</i></p>
October 25	<p>Second suspected inhalation case in Hamilton (confirmed October 29)</p> <p><i>Media Relations releases information about 3 university postal employees who were offered precautionary antibiotics on October 23 after complaining of flu-like symptoms.</i></p>
October 30	<i>“Anthrax Alert” e-mails sent to all faculty and staff at one of University A’s colleges by the police department.</i>
October 31	<i>PowerPoint presentation titled “Heightened Security Awareness: What you need to know and how YOU can help!” is given at all 3 campuses of University A by the Police, Environmental Health and Safety, Mail Services, and Occupational Health departments.</i>

Note: Events at University A are in *italics*.

each participant the interview questions ahead of time. This enabled individuals to formulate responses to questions and/or search archives for relevant information if they chose to do so. Therefore, while care must be taken in generalizing from one case (especially one with a limited sample subject to recall bias), we nevertheless hope that the experience of University A will prompt other universities to explore similar issues.

All interviews were tape recorded and transcribed to ensure information accuracy. Transcripts were coded by theme, focusing largely on the basic questions of who, what, when, and how (e.g., who was the target of communication, what was sent, how was it disseminated), as well as interviewees' perceptions of these components. We triangulated data from interviews and other sources to see if there was a convergence of perspectives, while being mindful of "unique [and] exceptional perspectives" to guard against the fallacy of too much coherence in data.¹⁹

FINDINGS: COMMUNICATION AT BUILDING 1

University A encountered numerous communication challenges both during and immediately after the incident at Building 1. We describe these challenges in terms of the perspectives of both information providers and recipients.

Responding to Uncertainty

Uncertainty was a major communication challenge during the anthrax attacks,²⁰⁻²² and the incident at Building 1 was no exception. On-scene responders needed to investigate a suspicious substance, make a quick assessment of its possible danger, and provide appropriate information and health advice to more than 100 people, all within a short time. Furthermore, information recipients were asking questions about what had occurred and whether there was any risk.

Those who viewed the release of white powder or were in the immediate vicinity of where the package was opened knew what had occurred and were concerned about their potential exposure. Information providers gave them direct instructions and subsequently accompanied them to the hospital. These recipients were generally satisfied with the communication process. For example, one interviewee recalled that

... after waiting for about an hour ... [responders] asked us to strip and go ... take a shower. ... They gave us these garments; ... [our] clothes and belongings were placed into a plastic bag and left in the building ... and one by one we were put into the ambulance and taken ... to [the] hospital.

Evacuees detained outside also faced uncertainty and consequently needed information. However, unlike the former group, the evacuees we spoke with felt their needs were not adequately addressed and that information flow was sporadic and infrequent. Specific "need-to-know" information included: *why am I being detained and when can I go back into the building to get personal belongings left behind* (such as wallets, keys, etc.)? For example, one interviewee observed:

What we wanted was: "what was going on" and we never really found out. ... We were never really told what was going on. ... We literally spent two hours trying to figure out what was going on. ... Our major occupation for the afternoon, while we were being corralled [outside] was ... what in [the] hell was going on, why [were] we [outside] and what's the deal?

These sentiments were common among many of the evacuees, despite efforts on the part of responders (as described by one information provider) to keep them informed "every 15 minutes," using a bullhorn, about "what we were doing and [why] we were doing it and what the status was." Moreover, responders, for their part, recognized the difficulty of communicating in the absence of concrete facts: "The biggest problem we seemed to have outside was ... [we] didn't know exactly what was going to happen. ... People [outside] wanted to know why they were being detained."

Furthermore, uncertainty was not confined solely to the on-scene communication response. Building 1 is a major facility, visible from different areas of the campus. The university thus needed to inform other students, faculty, staff, and the media (some of whom began to arrive during the incident) about what had occurred. Doing so was of vital importance, given that almost immediately rumors began to circulate that anthrax *had* been discovered on campus, as one information provider recalled:

[There] was the big rumor and, because as soon as it gets around that there's a suspected anthrax scare or incident at [Building 1], as it goes down the chain ... I should say [as it] goes around, kind of like a telephone game, the "suspected" part kind of falls off and it's like "there was anthrax at the ... building." So that's something we [had] to quell right away.

To dispel rumors, a representative from Student Life Services described how s/he visited student leadership, recreation, and government organizations to explain the Building 1 situation and answer questions from the students present. Furthermore, to address the needs of students and lecturers who had classes in the facility, information on building closures was posted on the university's TV network (available in all on-campus dor-

mitories and apartments). Announcements included the fact that a suspicious package had been discovered, that the facility would reopen October 17, and that classes normally held there would meet in alternative locations, which were also provided.

The university also used the Building 1 incident as an opportunity to educate the campus community about anthrax, as described later in this article.

Communication and Comfort

Risk communication research indicates that stress (both real and perceived) can adversely affect information processing (e.g., the Mental Noise Model).²³ Evacuees' responses suggest that the physical stress of waiting outside on an unseasonably hot afternoon may have heightened their frustration with the communication process. These individuals felt not only uninformed but also hot, hungry, and otherwise uncomfortable. Moreover, some had no way of getting home after being told of the building's closure: their wallets and keys were still inside. As one interviewee observed:

There was no indication what the problem was . . . that we should take identification with us. . . . If [responders] had known how serious the situation was in the building and they needed to get everyone out and we wouldn't go back in, I would like to have been told at that point. . . . It would have taken me less than 15 seconds to go into my office [and] pick up my wallet.

This issue also was recognized by information providers. One interviewee, for example, stated:

When you're telling individuals, "Hey, we got to put you over here and we [have] to keep you here for a while," I know I'd have some issues like that myself, being a coffee drinker and things like that. . . . When nature calls [for example], you have to respond to those things.

FINDINGS: COMMUNICATION BEYOND THE INCIDENT AT BUILDING 1

The incident at Building 1, as well as other (less dramatic) false alarms on campus, prompted University A to communicate with its community about a range of issues, including the university's response to potential contamination and the responsibilities of students, staff, and faculty. We explore these efforts in terms of components of an effective risk message:²⁴ audience (recipients of information), content (the information to be disseminated), source (message origins), and channel (method of providing information). We also discuss techniques for responding to information requests, as well as communication among departments.

Our conversations with information providers highlighted several messages the university sought to convey:

- What had occurred at Building 1;
- What the university was doing in response to incidents of potential anthrax contamination; and
- What individuals could do to assist the university in this effort.

These messages were, in turn, disseminated via a variety of channels. For example, two university-wide email messages were disseminated in memo format following the Building 1 incident. The first, sent on October 15 and titled "Mail Handling and Public Safety in Light of Recent Events," discussed important steps one should take when dealing with a suspicious piece of mail. The second, sent on October 16 and titled "Safe-guards and Procedures for Identifying and Handling Suspicious Mail," described steps for handling mail safely in light of the events at Building 1. Specifically, information included "how to handle mail safely and what [University A was] doing and what people should do if they came across suspicious [mail] . . . [as well as] identifiers of suspicious packages" (comments from one information provider).

In-person presentations augmented these email messages. Mail Services, EHS, the police, and Occupational Health organized a PowerPoint presentation as part of an open forum on October 31. This presentation was titled "Heightened Security Awareness: What you need to know and how YOU can help." Specifically, it provided information on "what to do if [one] found something suspicious . . . what anthrax is, what it looks like . . . [and] what would happen when [one would] notify [the University about a suspicious package]." Attendance at each event varied, but averaged around 100 to 150 persons.

Interviewees from the departments involved in these presentations believed the events served a valuable purpose. One person remarked, "It was a very good thing that we had sessions [where] people were invited to come and we would be happy to answer their questions. . . . We were available if they needed us." Another stated, "[The presentations] were helpful, because this was a section of the community that we would not have been able to address any other way . . . who opened mail on a daily basis and, in some places, large amounts of mail."

University A Postal Employees

In addition to the general community, University A also identified several specific audience groups with which to communicate. University postal employees were among these groups. Two U.S. Postal Service workers died of anthrax in late October 2001, nine workers became infected, and thousands more in Washington,

DC, New Jersey, and New York were placed on prophylactic antibiotics; thus, many postal employees considered themselves on the front lines of the war on terror.^{13,18,25} University A's postal employees also expressed concern about their safety while on the job, as one interviewee from Mail Services observed:

They were concerned about . . . exposure. . . . What, physically, could anthrax do [to] them if they got [it] onto their skin? What should they do . . . if they thought they had contracted it or whatever. . . . But, predominantly, the questions were: how do I know, how do I handle this, should [I] be . . . cautious?

University postal supervisors and EHS personnel stressed the following messages when interacting with postal workers:

- How to identify/handle suspicious pieces of mail while on the job;
- What types of work-related personal protective equipment (PPE) were available from the university; and
- What anthrax was and how it was contracted and treated.

These messages were presented through a variety of channels. For example, Mail Services representatives would often travel to different post offices at the university and distribute the "handout du jour," which discussed (among other items) the "mask situation" and "what was and was not a suspect [piece of mail] . . . [including] identifying suspicious packages [and] what to do in the event you find one." On October 15, the Supervisor of Mail Services developed and disseminated a memo that discussed notification procedures in the event a suspect piece of mail was discovered. In addition, Occupational Health often met informally with groups of postal workers to identify and respond to salient concerns, including "what testing had shown . . . what anthrax was . . . signs and symptoms . . . [and] personal protective equipment."

To develop these important messages, Mail Services and other departments relied heavily on the United States Postal Service (USPS) and the Centers for Disease Control and Prevention (CDC) for downloadable web updates and flyers. Specifically, the CDC website and Health Alert Network (HAN) provided numerous pieces of information, including: "Anthrax: FAQ," "Updated Information about How to Handle a Suspicious Package or Envelope," and the results of anthrax human tests and environmental sampling that had been conducted to date.²⁶

Media

State and local media took a particular interest in the Building 1 incident on October 15 and thus became an

other important communication audience. Reporters wanted to know whether anthrax had been found at the university, whether the university conducted research using anthrax, and whether any professors could serve as information sources for anthrax and bioterrorism issues. In response, Media Relations drafted three press releases regarding the Building 1 incident:

- October 15—The building had been closed out of concern about a suspicious package.
- October 16—The building would reopen the following day (October 17).
- October 23—Tests on the package were negative for anthrax.

In addition, Media Relations used its extensive networks of interdepartmental liaisons to seek answers to reporters' questions:

We would check. We would go to . . . our Associate VP for research and [ask], "Do we have people who [are] doing this kind of research [with anthrax]?" If there was a question [for] Facilities or [EHS], we would go to [people there] . . . and just deal with those questions and then get back to the reporter. . . . But if it were for [a] faculty expert . . . somebody who had done similar work . . . we actually pulled together . . . lists of faculty who were [experts on anthrax].

Responding to Information Requests

Disseminating information was only part of University A's communication response to the anthrax crisis. It also received (and responded to) information requests from numerous sources within the university. Below we list some of these groups and discuss the strategies used to address their needs:

- *Academic departments* (e.g., the religion department) were concerned about the safety of their mail. Police, EHS, and Mail Services all received such inquiries and used a combination of individual and group communication to respond to each one. For example, the police department developed a method of categorizing calls as either "response" or "service" oriented:

As a call came in, it was addressed either as a response type call, or it was addressed as a service call, which might mean we're going to do a program, . . . [an] anthrax information presentation. . . . You [have to] look at the nature of the call, and you address it in the most appropriate way, and if it's something that needs a response, you'd send someone right away.

Additionally, these departments often met with groups of individuals at their work sites (e.g., library employ-

ees) to provide anthrax-related information and answer questions.

- *Customers* at university mail facilities were concerned about the safety of the mail they were receiving. University A has several post offices on campus through which faculty, students, and staff receive both intra-campus and outside mail. One interviewee from Mail Services, for example, recalled people coming up to post office employees with questions about the safety of envelopes and parcels. These inquiries were handled on an individual basis by either postal employees or management.

Collaboration and Communication

During the anthrax crisis, federal agencies often were criticized for their perceived inability to work together to both investigate and communicate, with the term “turf battle” grabbing headlines.²⁷ As a large institution with many departments involved in the communication response to this crisis, University A faced similar challenges.

Our interviews show how University A used a team approach to integrate these various departments into a more cohesive communication structure. One interviewee summed up the importance of this approach:

[Get] the information together and get it out, [speak] as one voice and get everything out clearly and in a timely fashion, so that there weren't a whole bunch of different voices saying different things, so that we didn't make independent statements, but [still] had input on what went out.

Some examples of this collaborative effort included:

- Mail Services, EHS, Police, and Occupational Health personnel worked together to develop the October 31 PowerPoint presentations that were shown on all three campuses.
- Mail Services personnel worked with the Campus Information Services and Public Safety departments to develop a university anthrax website, which provided links to the bioterrorism pages of CDC and the FBI.
- University A formed an Emergency Operations Committee (EOC) shortly after the anthrax crisis. The EOC, which exists to this day, was designed both to further build on the collaboration that took place during the fall of 2001 and to ensure that the many different departments involved in crisis response at the university would “[work] together as a team . . . [during] other emergencies.”

Thus, collaboration involved the pooling of resources, sharing of information, and integration of communication infrastructure to form a more organized approach to

risk communication. This approach, many of our interviewees noted, was well-suited for University A's anthrax response:

I think it worked well. Everybody who was involved in it had a lot of experience in responding to . . . emergencies. So, when you sent them an e-mail and said, “We have new information, we have to meet today,” everybody drops everything and we meet today . . . it's not this . . . [people don't say], “Oh, maybe next week at 2 I can work you in.”

At the same time, this approach was not without its challenges:

The more challenging piece always, in any public health situation, is . . . working with several dozen diverse directors, representing various academic and staff departments at the university and coming to a sense of what information needs to be shared, how to best share it, [and] how to get it to [people] quickly. . . .

DISCUSSION

In this article, we have described some of the communication challenges encountered by a major university as part of its response both to an incident of potential anthrax contamination and to the larger anthrax crisis. We also have described some of the methods this university used to respond to these challenges. Our findings show how an institution that is not directly affected by a crisis can nonetheless find itself on the communication front lines. At the same time, however, one case study cannot be generalized to all universities, let alone other institutions. Proximity to incidents, structure and size of the university, and available resources vary tremendously. Nonetheless, some of our findings may be useful to other education institutions in meeting the communication challenges of future crises.

Maintaining a Steady Flow of Information

University officials who responded to the incident at Building 1 on October 15, 2001, faced numerous communication challenges, possibly the most crucial of which was maintaining a steady flow of information in the absence of concrete facts. This process was further complicated by the presence of three main audience groups: those inside the facility, those detained outside, and the larger community of faculty, students, and staff.

At times of crisis, authorities often must communicate with various audiences simultaneously, a necessary but challenging situation.^{28–30} At Building 1, responders were only partially successful in doing this. While information flow is unlikely to be 100% effective during a crisis, we believe colleges and universities can take several steps to

ensure maximal dissemination and, in doing so, build and expand on University A's experience:

- **Designate spokespersons** to serve as liaisons between those investigating the scene and those in need of information briefings. In future situations involving a large (or even small) group of detained individuals, several designated spokespersons should be dispersed amongst the crowd and linked to investigators via 2-way radios and walkie-talkies, so they can give updates in real time. Moreover, they could help answer questions and address concerns. For example, media and university relations personnel typically serve as spokespersons during emergencies. Designated individuals in the police, environmental health and safety, public safety, or other departments would more than suffice as well. This was partially done during the Building 1 incident, with one representative from Public Safety using a bullhorn to communicate with evacuees. However, we can only find evidence of one person serving in this role. We believe that more would be needed in future crises.
- **Provide an initial overview** of the emergency by explaining how uncertain the situation was (e.g., "There was a package that released white powder. We don't think it is likely to be anthrax, but we are taking a variety of precautions to deal with the potential risk."), what was being done about it (e.g., "We are working to find answers by communicating with the Department of Health and forwarding a sample to them."), and how people could learn more (e.g., "We will be back in XX minutes with an update, even if it is to say we still don't know.").

Comfort and Communication

During the white powder scare, evacuees were not only frustrated at not receiving information but also hungry, thirsty, and exhausted. These findings conform to Mental Noise and other risk communication models that posit an inverse relationship between stress (physical and/or mental) and information processing. We therefore emphasize the importance of not only providing information but also ensuring people's comfort in situations where groups may be necessarily sequestered for extended periods of time. At the same time, we are also aware that emergency responders may not be able to (and perhaps should not) attend to these needs while an investigation remains ongoing, as discussed in subsequent sections.

Reaching Different Audiences and Responding to Questions and Concerns

The risk communication literature emphasizes the importance of using multiple channels to reach various audiences.²² University A used a combination of mass

communication methods (memos, listserv e-mails) and interpersonal interactions (e.g., PowerPoint presentations, in-person education sessions) to reach and engage as many members of its community as possible. Most colleges and universities undoubtedly already use e-mail as a means of communicating with faculty, students, and staff. Presentations may also be helpful for several reasons. First, it is almost a certainty that e-mail messages will not reach everyone. Moreover, seminars provide opportunities not only to disseminate information but also to answer questions and address concerns.

The ability to effectively address questions and concerns was a key component of University A's communication effort. As was the case with federal, state, and local authorities,^{13,31} the university received a large influx of inquiries and questions throughout the fall of 2001. Its experience clearly illustrates the need for colleges and universities to anticipate and prepare for a surge in information requests during crises. Specifically, these institutions should develop plans for responding to inquiries. Techniques that University A used, including implementing a system of categorizing calls (response vs. service) and developing information hotlines, may prove useful.

A Teamwork Approach to Risk Communication

University A used various methods to better coordinate communication among its various health and safety departments. Public seminars and presentations on anthrax and mail safety featured speakers from the Police, EHS, Occupational Health, and Mail Services departments. Public Safety and Campus Information Services (CIS) collaboratively developed an anthrax website linked off the university's main page. Moreover, the university organized an Emergency Operations Committee (EOC) after the anthrax crisis. The EOC was designed to bring together groups such as Police, EHS, Occupational Health, and other departments during emergencies to share information, pool resources, and coordinate communication with the university community. Other academic institutions of similar size may find it useful to follow this EOC model.

This model would have played a valuable role during the response to the incident at Building 1. For example, it would probably have been unwise for EHS personnel to distribute water to evacuees while a potentially hazardous substance remained inside the facility. However, responders may have been able to notify other departments (such as dining services) and request that water and similar items be distributed as soon as logistically possible. Other academic institutions may find it useful to partner with their dining services to provide food and water to individuals who may be detained as part of an emergency. Not surprisingly, dining services is included as part of University A's EOC.

CONCLUSION

Colleges and universities are confronted with numerous potential crises, from hurricanes to influenza. Risk communication remains an important element of an effective response to such emergencies. In describing the communication lessons learned at one major university during a truly novel event, we hope that both other academic institutions and entities outside academia may use these lessons to more effectively communicate during the next emergency.

ACKNOWLEDGMENTS

This research was supported in part by the U.S. Department of Homeland Security through the National Consortium for the Study of Terrorism and Responses to Terrorism (START, grant number N00140510629), the National Science Foundation, Rutgers University's Aresty Research Center for Undergraduates, and the George H. Cook Scholars program. The interviewees who participated in the study provided invaluable insight into these very important issues. Additionally, the authors are grateful to Ryan Sklar, Christine Scott, and Adrienne Bond from the spring 2003 Environmental Communication Clinic for their help in developing the interview questions, as well as Ava-Gay Blagrove and Robert Jernick for their assistance in conducting interviews. Finally, a special thanks to our colleagues Karen O'Neill, William Hallman, Barbara M. Goff, Jeff Calia, Emily Perry, Glenn Paulson, Drew Harris, and Oksana Hucul for their invaluable support and guidance. Any opinions, findings, conclusions, or recommendations in this article are those of the authors and do not necessarily reflect the views of the U.S. Department of Homeland Security, other funding entities, or our colleagues.

REFERENCES

1. Morgan MG, Fischhoff B, Bostrom A, Atman CJ. *Risk Communication: A Mental Models Approach*. Cambridge, UK: Cambridge University Press; 2002.
2. Rudd R, Comings JP, Hyde JN. Leave no one behind: improving health and risk communication through attention to literacy. *J Health Commun* 2003;8(Suppl 1):S101-S115.
3. Vanderford M. Communication lessons learned in the Emergency Operations Center during CDC's anthrax response: a commentary. *J Health Commun* 2003;8(Suppl 1):S11-S12.
4. Golan K. Surviving a public health crisis: tips for communicators. *J Health Commun* 2003;8(Suppl 1):S126-S127.
5. Gursky E, Inglesby T, O'Toole T. Anthrax 2001: observations on the medical and public health response. *Biosecure Bioterror* 2003;1(2):97-110.
6. Glass TA, Schoch-Spana M. Bioterrorism and the public: how to vaccinate a city against panic. *Clin Infect Dis* 2002;34:217-223.
7. Clarke C. Risk communication during anthrax and 9/11: a literature review. Paper presented at: Society for Risk Analysis Annual Meeting; December 4-7, 2005; Orlando, FL.
8. Tengelsen L, Hudson R, Barnes S, Hahn C. Coordinated response to reports of possible anthrax contamination, Idaho, 2001. *Emerg Infect Dis* 2002;8(10):1093-1095.
9. Greimel H. From Asia to Scandinavia, anxiety knows no boundaries. *Bergen Record* Oct 23, 2001;A2.
10. Gordon J. As the threats mount, so does the fear. *New York Times* Oct 21, 2001;A3.
11. Eddy M. Anthrax scares sweep the globe. *Bergen Record* Oct 18, 2001;A2.
12. Clarke C, Chess C. Risk communication at a major university: an anthrax case study. *Proceedings of the 28th Arctic and Marine Oilspill Program (AMOP) Technical Seminar*; June 7-9, 2005; Calgary, Canada. Ottawa: Environment Canada; 2005.
13. Chess C, Calia J, O'Neill KM. Communication triage: an anthrax case study *Biosecure Bioterror* 2004;2(2):106-111.
14. Bresnitz EA, DiFerdinando GT. Lessons from the anthrax attacks of 2001: the New Jersey experience. *Clin Occup Environ Med* 2003;2(2):227-252.
15. Mangan K. Tulane U. completes its hurricane-interrupted welcome to the freshman class, as layoffs continue. *Chron High Educ* 2006 Jan. Available at: <http://chronicle.com/daily/2006/01/2006011602n.htm>. Accessed January 16, 2006.
16. Turner JC. How colleges can plan for bird flu. *Chron High Educ* 2005 Dec. Available at: <http://chronicle.com/weekly/v52/i17/17b02001.htm>. Accessed January 16, 2006.
17. Centers for Disease Control and Prevention. *Schools and Terrorism*. Atlanta: Centers for Disease Control and Prevention; August 12, 2003. Available at: <http://www.bt.cdc.gov/children/PDF/working/school.pdf>. Accessed January 25, 2006.
18. Quinn SC, Thomas T, McAllister C. Postal workers' perspectives on communication during the anthrax attacks. *Biosecure Bioterror* 2005;3(3):207-215.
19. Aldoory L. Making health communications meaningful for women: factors that influence involvement. *Journal of Public Relations Research* 2001;13(2):163-185.
20. Casani J, Matuszak DL, Benjamin GC. Under siege: one state's perspective of the anthrax events of October/November 2001. *Biosecure Bioterror* 2003;1(1):43-45.
21. Clear communication with employees needed before re-opening the Brentwood facility. *Hearing Before the House Committee on Government Reform*, 108th Cong, 1st Sess, October 23, 2001.
22. Lyman F. Anatomy of the 9/11 risk communication fiasco. *SEJournal* 2004 Nov;14(2):4,23-25. Available at: <http://www.sej.org/pub/index2.htm>. Accessed December 16, 2005.
23. Covello V, Peters R, Wojtecki J, Hyde C. Risk communication, the West Nile virus epidemic and bioterrorism: responding to the communication challenges posed by the in-

- tentional or unintentional release of a pathogen in an urban setting. *J Urban Health* 2001;78(2):382–391.
24. Freimuth V, Linnan HW, Potter P. Communicating the threat of emerging infections to the public. *Emerg Infect Dis* 2000;6(4):337–348.
25. Blanchard JC, Haywood Y, Stein BD, Tanielian TL, Stoto M, Lurie N. In their own words: lessons learned from those exposed to anthrax. *Am J Public Health* 2005;95(3):489–495.
26. Centers for Disease Control and Prevention. *Anthrax: What You Need to Know*. Atlanta: Centers for Disease Control and Prevention; 2003. Available at: <http://www.bt.cdc.gov/agent/anthrax/needtoknow.asp>. Accessed January 25, 2006.
27. Maxwell TA. The public need to know: emergencies, government organizations, and public information policies. *Government Information Quarterly* 2003;20:233–258.
28. Wray R, Jupka K. What does the public want to know in the event of a terrorist attack using plague? *Biosecure Bioterror* 2004;2(3):208–215.
29. Glick D, Harrison K, Davoudi M, Riopelle D. Public perceptions and risk communications for botulism. *Biosecure Bioterror* 2004;2(3):216–223.
30. Becker S. Emergency communication and information issues in terrorist events involving radioactive materials. *Biosecure Bioterror* 2004;2(3):195–207.
31. Mott JA, Treadwell TA, Hennessy TW, Rosenberg PA, Wolfe MI, Brown CN. Call-tracking data and the public health response to bioterrorism-related anthrax. *Emerg Infect Dis* 2002;8(10):1–11.

Address reprint requests to:
Christopher E. Clarke
Department of Communication
Cornell University
212 Kennedy Hall
Ithaca, NY 14850

E-mail: cec54@cornell.edu